# **SIEMENS**

# **MammoReport Plus**

SP

# **Installation and Startup**

Hardcopy Camera

Camera Information for VB10

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# **HCC information for MammoReport Plus**

#### **General information**

#### Acronyms and abbreviations

AE title	Application entity title
BU	Business Unit (modality)
DCS	DICOM Conformance Statement
DICOM	Digital Imaging and Communication in Medicine
HW/SW	Hardware/Software
HCC	Hardcopy Camera
LAN	Local Area Network
LUT	Look Up Table
ОЕМ	Original Equipment Manufacturer
SCP	Service Class Provider
SCR	Soft Copy Reading
SCU	Service Class User
TCP/IP	Transfer Control Protocol/Internet Protocol

#### **Block diagram MammoReport Plus and Hardcopy Camera**

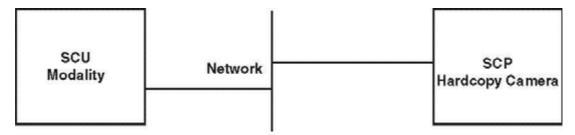


Fig. 1:

#### **System references**

- See Siemens Medical Solutions Intranet UPTIME Services
- Product-specific technical documentation

#### **Hardware components**

- Cable, straight-through, S/UTP RJ45 (5m; part no.: 30 74 515)
- Cable, straight-through, S/UTP RJ45 (30m; part no.: 30 74 523)

or

- See Siemens Medical Solutions Intranet UPTIME Services
- Product-specific technical documentation

#### **Restrictions and known effects**

NOTE	The DICOM camera parameter for "color appearance" has to be set to a "12-bit grayscale" in the DICOM print device menu step 3. (Filming properties)
NOTE	Print the SMPTE test image to check the modality and camera setting according the description and verify the results with the values in the reference value table for max. density 3.50.
NOTE	The DICOM camera parameter for "maximum density" has to set to 3.50.
NOTE	The Print Job, Presentation LUT and Color Print SOP Class ist not tested nor released.
NOTE	SCR-Application: ("not for diagnostic use")  Magnification Type CUBIC was sent, without Smoothing Type.
	The SCR-System AET is by default SCR_SYNGO.
	To configure only one AET at the printer site, use SCR_SYNGO also for syngo printing.
NOTE	Sending film sizes that are not available at the customer site can cause problems at the camera site. In this case, it is recommended to delete these film sizes for the portrait and landscape format.
NOTE	The density values for the image quality were measured with a calibrated densitometer X-Rite 301. The measurement result from

#### **Errors and warning messages**

N/A

as described in the tables.

other densitometers may differ from the absolute density values

# Scope of applicability

# Modality/system

Device type	Modality (SCU)
Product name	MammoReport Plus
Modality host name/console	CELSIUS02
HW revision	Intel Xeon-CPU 3.06GHz / 4GB RAM
Manufacturer	Siemens Medical Solutions
SW revision	VB10C (syngo-based VD20N)
Conformance statement	Syngo VD20J, Release 16.0

#### **Hardcopy cameras**

This table includes all hardcopy cameras using DICOM basic print.

Manufac-	UCC nome	Software validity			
turer	HCC name	VB10	V	V	V
AGFA	Drystar 5500	N/A			
AGFA	Drystar 5300	N/A			
AGFA	Drystar 4500	N/A			
AGFA	Drystar 4500M	Х			
AGFA	Drystar 3000	N/A			
AGFA	LR5200/MG 3000	N/A			
AGFA	LR3300/MG 3000	N/A			
CODONICS	Horizon	N/A			
CODONICS	NP 1660MD	N/A			
FUJI	Drypix 7000	X			
FUJI	Drypix 3000	N/A			
FUJI	Drypix 1000	N/A			
FUJI	FM DPL/FN-PS 551	X			
FUJI	FM DP3543/FN-PS 551	N/A			
FUJI	FL IMD/FN-PS 551	N/A			
KODAK	DryView 8900	Х			
KODAK	DryView 8700-Plus/	N/A			
	PACS Link MIM 200				

Manufac-	1100	Software validity			
turer	HCC name	VB10	VB10 V V		٧
KODAK	DryView 8700-Dual/	N/A			
	PACS Link 9410 MIM 8800				
KODAK	DryView 8610/	N/A			
	PACS Link MIM 200				
KODAK	DryView 8300/	N/A			
	PACS Link MIM 200				
KODAK	DryView 8200/	N/A			
	PACS Link MIM 200				
KODAK	DryView 8100/	N/A			
	PACS Link MIM 200				
KODAK	KELI 160/	N/A			
	PACS Link MIM 200				
KODAK	KELP 2180/	N/A			
	PACS Link MIM 200				
KODAK	KELP 1120/	N/A			
	PACS Link MIM 200				
KODAK	MLP 190	N/A			
KONICA	LI 21/Print Link	N/A			
KONICA	LI 2001	N/A			
KONICA	DryPro 752	N/A			
KONICA	DryPro 722/Print Link	N/A			

X = Hardcopy camera is released

N/A = Hardcopy camera is not released

**NOTE** 

The use of non-released combinations of hardcopy cameras and MammoReport Plus system is prohibited and does not meet the requirements specified.

#### **DICOM** associations

A DICOM association is a network connection between 2 DICOM applications. The association is established and released by the SCU and may be aborted by the SCU or SCP. The maximum number of associations for each HCC device is defined in the DCS. The maximum number of associations depends on the configuration and may be expanded by increasing the number of gateways connected to the printer device.

In a DICOM network environment, there are two possibilities for connecting a modality (SCU) to an HCC device (SCP).

Case 1: The association is always opened. Assuming that this behavior applies to all modalities (connected to the same HCC device), the number of modalities has to be equal to or less than the maximum number of supported associations.

Case 2: The association is opened (and closed) on demand. Assuming that this behavior applies to all modalities (connected to the same HCC device), the number of modalities may be greater than the maximum number of supported associations. This number will be shared by the modalities.

For each SIEMENS modality, the association open-close behavior is fixed. For other non-SIEMENS modalities, this behavior is unknown. Under optimal circumstances, the number of modalities is equal to or less than the maximum number of supported associations.

#### The association is always opened by the SCU (case 1)

If the associations are always opened by the SCU for each configured HCC device, the association is reserved for this SCU only.

If the maximum number of associations = 1 and another modality never releases the association, this HCC device is always reserved for this modality.

#### The association is opened and closed on demand (case 2)

The associations are opened (and closed) by the SCU on demand for each configured HCC device with the product name.

Special cases (compare also to case 1):

If the number of modalities configured in the HCC device is greater than the maximum number of supported associations, printing will not work for some modalities. Printing functionality depends on the access time and the release mechanism of each connected modality (e.g., the maximum number of supported associations = 1, the number of modalities = 2. During the access time of the first modality, the access of the second modality is denied and connectivity fails and vice versa).

If other modalities do not release the associations, the shareable number of associations decreases.

# **Modality**

#### Hardware and software prerequisites

All hardware and software prerequisites are included with the MammoReport Plus system delivery volume.

#### **Parameters**

For software configuration, HCC data/parameters and possible additional film matrix properties (syngo: filming properties) are required.

#### Modality data and configuration parameters

Properties	Example	Supplier
Port number	5104	Default entry
AE title	SCR_SYNGO	Default entry
TCP/IP address	xxx.x.xxx	network administrator

## 1. HCC data and configuration parameters<sup>1</sup> (syngo based)

1 The values of these parameters are part of the specific HCC information

Example: Agfa Drystar 4500M

Application entity Properties	Display	Supplier
AE title	DRY4500M	Network administrator or HCC service
Port number	104	HCC service

HC device/ general settings	Display	Supplier
Туре	DICOM printer	Default entry
Class (printer spec file name)	agfadrystar4500M	Default entry
DICOM node	dry4500m	Default entry

Filming properties		Display	Supplier
Hold printed film jobs		10	Default entry
Min. density		20	Default entry
Pixel size [1/1000 mm]		50.0 x 50.0	Default entry
Film sheet formats,	Number of pixels	8"x10"	
Portrait	[columns x rows]	3828x4958	Default entry
		10"x12"	Default entry
		4892x5810	

Filming properties		Display	Supplier
Film sheet formats,	Number of pixels	8"x10"	
Landscape	[columns x rows]	4958x3828	Default entry
		10"x12"	Default entry
		5810x4892	
Medium type		Blue film	Default entry
Film destination		Processor	Default entry
Color appearance		Grayscale 12bit	has to be change to grayscale 12 bit
Background		Black	Default entry
Transformation		No magnification	Default entry

#### Film matrix properties

The settings for filming properties depend on the class selected (DICOM camera). A pull-down menu for DICOM-class cameras is provided. Select your DICOM camera type. A specific file for this type is loaded and the "filming properties" are shown. Changing the "filming properties" will affect the camera site and may not meet the requirements. Do not make any changes, unless otherwise instructed.

NOTE

Filming properties are "pixel size" and "media sheet size"; this data is required for image scaling and cannot be changed.

#### 2. For SCR-based application ("not for diagnostic use")

#### 2.1 Hardcopy Camera Settings

Open Patient Browser, Options, SCR-Service

Select DICOM, Setup tab card: DICOM Entities	
Step:	
select printer and edit: AET, IP-Adress and Port for new printer.	
Example:	
scr-System = SCR_SYNGO	
Printer(e.g.) = DRY4500M or	
Printer(e.g.) = FMDPLHR or	
Printer(e.g.) = DRY7000HR or	
Printer(e.g.) = DV8900	

#### Select DICOM, Setup tab card: DICOM Entities

Syngo DICOM port =5104

SyngoAET = CELSIUS02

#### Select DICOM, Printer tab card: Printer Setup

#### Step:

define the right printer parameter as below and save it.

"For detailed Hardcopy Camera setup information see to the corresponding specific Hardcopy Camera information in this document."

#### **NOTE**

The SCR-System AET is by default SCR\_SYNGO. To configure only one AET at the printer site, the syngo AET for print must be also SCR\_SYNGO.

#### Software configuration

- The following information is required of the Hardcopy Camera:
  - Host name
  - TCP/IP address
  - Application entity title
  - Port number

The AE title, port number and camera type have to be provided by the local camera service.

#### Syngo software configuration and laser camera

- 1. Select options in the menu bar
- 2. Click to local service
  - The Siemens service software authentication platform appears
- 3. Enter the password and click "OK"
  - □ The syngo service software home menu Platform appears
- 4. Click "configuration"
  - □ The local service configuration list of system options appears
- 5. Click DICOM "general"
- 6. Click ">"
  - The local application entity title platform appears
- 7. Provide the local camera service with the information in the "Print (SCU) AE Title "SCR SYNGO" field
- 8. Click "Save"; ">"; "Finish"
  - □ The configuration setup platform appears

- 9. Click local host "TCP/IP LAN"
  - □ The local service configuration TCP/IP LAN platform appears
- 10. Provide the local camera service with the information in the "IP address" field (scroll down menu for IP address but do not select it)
- 11. Click "Finish"
  - □ The configuration setup platform appears
- 12. Select DICOM print devices
  - □ The local service hardcopy device platform appears
- 13. Enter the host name and TCP/IP address of the laser camera (provided by the camera manufacturer)
- 14. Click "test" for testing IP communication (ping)
- 15. Click "save"
- 16. Click "OK"
- 17. Click ">"
  - □ The general note properties dialog platform appears
- 18. Under logical name: Enter the logical name of the laser camera
- 19. Select the host and choose the previously defined host name in the hardcopy device platform
- 20. Under application entity properties: Enter the AE title in the edit AE title field (provided by the camera manufacturer)
- 21. Enter the port number (provided by the camera manufacturer)
- 22. Click "add"
- 23. Click "save"
  - □ DICOM node properties successfully saved
- 24. Click "OK"
- 25. Select the logical name again and click "verification" to test the DICOM communication (mc3echo)
- 26. Click ">"
  - □ The camera-specific parameters platform appears
- 27. HC device: Enter the camera name
- 28. General settings: /type: DICOM printer
- 29. /class: e.g., agfadrystar3000 or see specific HCC information

#### 30. Filming properties:

- Hold printed film job 10 = default; (max. =10) (films can be printed again)
- Min. density 20 = default; (can be changed by increments of 0.1)
- Pixel size (changes not allowed)
- Film sheet formats portrait (do not modify and/or add film sizes, select and delete film sizes that are not available at the customer site)
- Medium type blue film = default; clear film; paper
- Film destination processor = default; magazine
- Color appearance monochrome =default; (select color for printers that support and use color media only, e.g., Drystar2000; Codonics)
- Background black =default; white
- Transformation no magnification = default; do not change this value; except for Kodak XL 959; replicate; bilinear; cubic; (do not change any other values under filming properties)
- 31. Click on "save"
  - □ Caution: Wait for the message "device properties successfully saved"
- 32. Click "OK"
- 33. Click "Finish"
- 34. Skip by clicking ">" and select the next marked DICOM "HC overview"
- 35. Click "Finish"
  - □ The configuration setup platform appears
- 36. Click LUT files

#### NOTE

If new LUT files for one or more modalities are available on a removable medium, e.g., floppy or CD, these files can be selected on the source drive and copied to the dependent LUT directories on the local host. Unnecessary LUT files can be removed from the LUT directories on the local host.

- 37. Click ">"
  - □ Usage of presentation LUT platform appears
- 38. Select "Correction LUT"
- 39. Modifications are necessary for additional image impressions only.

#### NOTE

Only DXMG image and SC image are relevant. Depending on the camera, specific entries have to be performed. If nothing else is mentioned, set the MammoReport Plus image and SC image to "CR LUT" and "3.50" for maximum density. The entries for MammoReport Plus image and SC image have to be identical.

- 40. Overall maximum density:
  - 3.00 = default (depends on the max. possible value of the max. density of all image types) **set to 3.50**
- 41. Interpolation for printing:
  - Bilinear mode = default; #Smoothing Type
  - Replicate #Smoothing Type
  - Cubic 0, 2, 3, 4 = concerns cubic mode only **Select "cubic 0"**
- 42. When changes are made, click "save"
- 43. Click on "finish"
- 44. Click "home"; the system automatically restarts the application

This may take some time. Confirm the warnings with "OK."

# Image quality and optical density check

### **General image quality information (LUT)**

Only the standard LUT files are loaded. For importing/removing additional/unnecessary LUT files (see the "Additional/unnecessary LUT files" section).

The image data from the modality to the HCC is transformed/corrected by the LUTs, once in the modality and once in the HCC; thus, the LUT has to be set on both sides:

- See Siemens Medical Solutions Intranet UPTIME Services
- Product-specific technical documentation

#### **Prerequisite correction LUT setting for MammoReport Plus**

Modality	Image type	Correction LUT	Max. density
MammoReport Plus	DXMGImage	cr	3.00 1
MammoReport Plus	DXMGImage	cr	3.50
нсс	See specific camera information "DICOM printer settings". Settings are made by the HCC Service; "LINEAR LUT"		

<sup>1. (</sup>only for Drystar 4500, not Drystar 4500M)

#### **Density verification**

There are two possibilities for checking the LUT via the film density:

The modality is configured to a specific correction LUT and the HCC is configured to linear curves, or the modality is configured to a linear LUT and the HCC is configured to linear curves.

#### **Density verification for MammoReport Plus**

Check	Verification for	Modality adjustment			Reference
no.	MammoRe- port Plus	Image type	LUT	Max. density	value
1	Desired density	DXMGImage	cr	3.50 (3.00 <sup>1</sup> )	See table for cr
2	HCC linearity	DXMGImage	linear	3.50 (3.00 <sup>1</sup> )	See table for linear LUT

1. (Only for Drystar 4500, not Drystar 4500M)

These two checks are equivalent; checking the "specified density" is sufficient.

Checking the "HCC linearity" may be necessary if the desired density verification (1) shows deviations and the HCC setting needs to be changed.

NOTE

Even if the HCC Service does not require a test image of the modality for the HCC setting, it is easier to check this setting - and possibly further HCC corrections - with the HCC linearity verification (2) than with the desired density verification (1). Only the HCC linearity LUT is effective; a graphical display would only show the current HCC behavior, which could be helpful for the HCC Service.

#### **Density values**

 Measure the density values in 11 gray levels in the SMPTE test image (Fig. 2 / p. 16) (for each film size).

W:4094; C:2048;

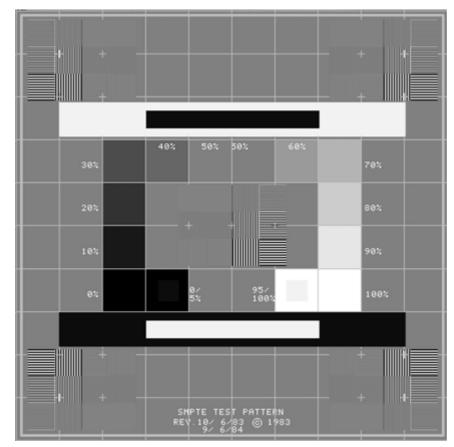


Fig. 2: SMPTE\_1k\_.....BMP

Tab. 1 Reference value for max. density 3.00

		cr (LUT)		Linear LUT		
Step	Ref. LUT	Maximum density	Minimum density	Ref. LUT	Maximum density	Minimum density
1	0.20	0.23	0.17	0.20	0.23	0.17
2	0.31	0.35	0.27	0.47	0.51	0.44
3	0.42	0.47	0.37	0.76	0.80	0.72
4	0.56	0.62	0.50	1.03	1.09	0.98
5	0.73	0.79	0.67	1.32	1.38	1.26
6	0.93	1.00	0.86	1.59	1.66	1.53
7	1.15	1.23	1.07	1.88	1.95	1.81
8	1.43	1.51	1.35	2.17	2.24	2.09
9	1.82	1.91	1.73	2.45	2.54	2.36
10	2.30	2.40	2.20	2.73	2.82	2.63
11	3.00	3.10	2.90	3.00	3.10	2.90

Tab. 2 Reference value for max. density 3.50

		cr (LUT)	r (LUT) Linear LUT			
Step	Ref. LUT	Maximum Minimum Ref. LUT	Ref. LUT	Maximum density	Minimum density	
1	0.20	0.23	0.17	0.20	0.23	0.17
2	0.34	0.38	0.30	0.52	0.56	0.49
3	0.47	0.51	0.43	0.86	0.90	0.82
4	0.64	0.69	0.59	1.18	1.23	1.13
5	0.81	0.87	0.75	1.52	1.58	1.46
6	1.05	1.12	0.99	1.84	1.91	1.78
7	1.31	1.38	1.24	2.18	2.25	2.11
8	1.66	1.74	1.58	2.52	2.60	2.44
9	2.10	2.19	2.01	2.85	2.94	2.77
10	2.68	2.77	2.59	3.18	3.27	3.08
11	3.50	3.60	3.40	3.50	3.60	3.40

#### Reference film

#### Reference film

To verify the required image quality, create a reference film and compare the measured density values from the film to the density values in the table above.

#### Refer to

- Siemens Medical Solutions Intranet UPTIME Services
- Product-specific technical documentation

or follow the short description below.

#### Reference film with technical images

To verify the **desired** LUT adjustment, follow this procedure:

Prerequisite configuration for desired LUT adjustment (default setting)

Modality	Image type	Correction LUT	Max. density
MammoReport Plus	DXMGImage	cr	3.00 (for Agfa Drystar 4500)
MammoReport Plus	DXMGImage	cr	3.50
нсс	See specific camera information "DICOM printer settings".  Setting is performed by the HCC Service; "LINEAR LUT"		

Prerequisite configuration for linear LUT adjustment

Modality	Image type	Correction LUT	Max. density	
MammoReport Plus	DXMGImage	Linear or nothing selected	3.00 (for Agfa Drystar 4500)	
MammoReport Plus	DXMGImage	Linear or nothing selected	3.50	
нсс	See specific camera information "DICOM printer settings".  Setting is performed by the HCC Service; "LINEAR LUT"			

- 1. The layout is configurable in option/configuration/filming layout
- Use format landscape; 2 columns; 1 row; normal image polarity; cubic magnification; mammo LUT; (CR curve); SMPTE test image; Trim=on; density=3.00 or 3.50; default center/width; for the film sheet
- 3. Select the "Viewing" task card, select Patient Browser, navigate to the "Service Images" folder and view the test images:

Use SMPTE test images (technical image) without text and print the film sheet.

4. Measure SMPTE test image (Fig. 2 / p. 16) and verify the CR (LUT) using the "Density values" table

#### Segment layout:

Segment	Image	Window	Center
1	SMPTE test image	4094	2048
2	SMPTE test image	4094	2048

5. Repeat this procedure with the linear LUT adjustment

#### **Description of correction LUT files**

#### **Description of correction LUT files**

Correction LUT	LUT files with D <sub>min.</sub> 0.2 and D <sub>max.</sub> 3.00 or 3.50
Linear or nothing selected	Linear LUT
cr	Standard LUT; default LUT for all DICOM cameras; max. density 3.00 - 3.50

### Additional and unnecessary LUT files

If new released LUT files are available on a removable medium (e.g., floppy or CD), these files may be selected on the source drive and copied to the dependent LUT directories on the local system. Unnecessary LUT files may be removed from LUT directories on the local system.

#### **Importing LUT files**

- 1. In the local service configuration platform, select LUT files
- 2. Select the (source) drive and the path where the appropriate LUT files are located
- 3. Select the destination LUT directory (correction LUT directory) which depends on the image type (DXMGImage).
- 4. Pressing the copy button transfers the selected LUT file to DXMGImage type.
- 5. Confirm the message "files successfully copied" by clicking "OK"

#### **Removing LUT files**

Unnecessary LUT files can be removed from LUT directories on the local host by selecting the appropriate LUT file and clicking the 'remove' button.

• Click ">"

#### Real size scaling

N/A

# Agfa Drystar 4500M

#### **General information**

#### **Block diagram**

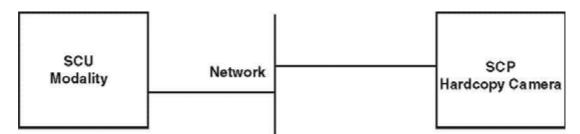


Fig. 3:

#### Available film sizes

Appli	cation	Status	Film type	Medium type
14" x 17"	Portrait	N/A	N/A	N/A
14 X 17	Landscape	N/A	N/A	N/A
14" x 14"	Portrait	N/A	N/A	N/A
14 X 14	Landscape	N/A	N/A	N/A
11" x 14"	Portrait	N/A	N/A	N/A
11 X 14	Landscape	N/A	N/A	N/A
10" x12"	Portrait	Yes	DRYSTAR MAMMO	Blue-based
10 X12	Landscape	Yes	DRYSTAR MAMMO	Blue-based
8" x 10"	Portrait	Yes	DRYSTAR MAMMO	Blue-based
	Landscape	Yes	DRYSTAR MAMMO	Blue-based
Ott	hers	N/A	N/A	N/A

#### Restrictions

NOTE

For HCC-independent restrictions, see (Restrictions and known effects / p. 5).

NOTE	The standard EN55011, Radiated Emission is only supported with class A (Hospital use).
NOTE	Maximum number of associations supported: 10
NOTE	For film size 8INX10IN portrait and landscape orientation, the image is not completely visible. The corners are not printed.
NOTE	No WARNINGS will be sent do to "Conformance Level 0" setting.

# SCU/modality software configuration

## 1. Syngo-based modalities

Application entity Properties	Display	Changes allowed
AE title	DRY4500M	Yes
Port number	104	No

HC device/ general settings	Display	Changes allowed
Туре	DICOM printer	No
Class	agfadrystar4500M	No
(Printer spec file name)	agiadi ystai 4300ivi	INO
DICOM node	dry4500m	Yes

Filming properties	Display	Changes allowed
Hold printed film jobs	10	Yes
Min. density	20	No
Pixel size [1/1000 mm]	50 x 50	No

Filming properties		Display	Changes allowed
Film sheet formats,	Number of pixels	8"x10"	
Portrait	[columns x rows]	3828x4958	
		10"x12"	In "define new"
		4892x5810	Do not modify/add
Film sheet formats,	Number of pixels	8"x10"	Select only
Landscape	[columns x rows]	4958x3828	Delete only
		10"x12"	
		5810x4892	
Medium type		Blue film	Yes
Film destination		Processor	No
Color appearance		Grayscale 12 bit	No
Background		Black	Yes
Transformation		No magnification	No

Do not modify and/or add film sizes.

Do not modify pixel sizes.

Delete film sizes that are not available at the customer site.

#### 2. SCR-based application "not for diagnostic use".

Open Patient Browser, Options, SCR-Service

Select DICOM, Setup tab card: DICOM Entities

Step:

select printer and edit: AET, IP-Adress and Port for new printer.

Example:

scr-System = SCR\_SYNGO

Printer(e.g.) = DRY4500M

Syngo DICOM port = 5104

SyngoAET = CELSIUS02

#### Select DICOM, Printer tab card: Printer Setup

Step:

define the right printer parameter as below and save it:

DICOM	
Printer (setup of film size 8INx10IN)	Printer (setup of film size 10lNx12lN)
Printer name = Drystar 4500M 8x10	Printer name = Drystar 4500M 10x12
Dmin = 20	Dmin = 20
Dmax = 350	Dmax = 350
Portrait matrix = 3828x4958	Portrait matrix = 4892x5810
Landscape Matrix =4958x3828	Landscape Matrix =5810x4892
Portrait pixel spacing = 0.5 x 0.5	Portrait pixel spacing = 0.5 x 0.5
Landscape pixel spacing = 0.5 x 0.5	Landscape pixel spacing = 0.5 x 0.5
Graylevel = 16(12)	Graylevel = 16(12)
Medium = BLUE FILM	Medium = BLUE FILM
Medium Size = 8INx10IN	Medium Size = 10INx12IN

The SCR-System AET is by default SCR\_SYNGO. To configure only one AET at the printer site, the syngo AET for print must be also SCR\_SYNGO.

# SCP/hardcopy camera configuration (provided by OEM)

#### Identification

Device type:	DICOM print server/printer
Device name:	DRYSTAR 4500M
Manufacturer:	AGFA
SW revision:	V2.00-C1
Physical interface:	Ethernet, 10/100 base T/Tx, RJ45
Network protocol:	TCP/IP
DICOM conformance statement:	Document No. 000584, Rev. 1.5
Image memory:	Part of 128 MB Main Memory
Hard disk:	4 GB
Number of inputs:	1 Ethernet card
Number of outputs:	N/A
Number of operating panels:	1 built-in operating panel

## **Printer settings**

Parameter name	Setting
Calling AE title	SCR_SYNGO
Number of copies	1
Print priority	Low
Polarity	Normal
Film orientation	Portrait
Trim	No
Film size ID	Empty
Medium type	Empty
Print even if film size ID/medium type is not supported	No
Kernel	Custom: Interpolation type cubic high res., smoothing factor - 2.5
Magnification	Magn: Max.
Pixel size	Ratio. 1.0/1.0
Perception LUT	Linear
Kanamori-like value	0
Custom value	Empty
Illumination (cd/m <sup>2</sup> )	2000
Reflected ambient light (cd/m2)	10
Border density (OD x 100)	Black
Empty image density (OD x 100)	Black
Minimum density	Empty
Maximum density	Site/370
Annotation 1	Edit custom: None
Annotation 2	Edit custom: None
Window (%)	Empty
Level (%)	Empty
Image orientation	R0
Conformance level	0
N-event enabled	Off
Mammo modality	Site: Yes

Parameter name	Setting
Association timeout(s)	0
Image timeout(s)	0
ALLOW IMPLICIT VR LITTLE ENDIAN	Yes
ALLOW EXPLICIT VR LITTLE ENDIAN	Yes
ALLOW EXPLICIT BIG ENDIAN	Yes
Resolution	508
Supported SOP classes	Edit
Early processing allowed	YES

#### **Error/warning messages**

No errors or warnings have been tested.

# Image quality and optical density

No specific parameter available.

## Real size scaling

N/A

# Fuji Drypix 7000

# **General information**

#### **Block diagram**

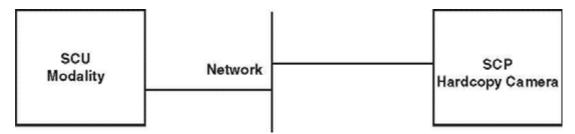


Fig. 4:

#### Available film sizes

Appli	cation	Status	Film type	Medium type
14" x 17"	Portrait	No <sup>1</sup>	No <sup>1</sup>	No <sup>1</sup>
14 X 17	Landscape	No <sup>1</sup>	No <sup>1</sup>	No <sup>1</sup>
14" x 14"	Portrait	N/A	N/A	N/A
14 X 14	Landscape	N/A	N/A	N/A
11" x 14"	Portrait	Yes	DI-HL	Blue-based
11 X 14	Landscape	Yes	DI-HL	Blue-based
10" x 12"	Portrait	N/A	N/A	N/A
10 X 12	Landscape	N/A	N/A	N/A
8" x 10"	Portrait	Yes	DI-HL	Blue-based
0 X 10	Landscape	Yes	DI-HL	Blue-based
Otl	ners	N/A	N/A	N/A

<sup>1.</sup> Film size (format) is available but not released

#### Restrictions

NOTE	For HCC-independent restrictions, see (Errors and warning messages / p. 5).
NOTE	Only EN55011, Class A(Hospital use) is supported.

NOTE	Maximum number of associations supported: 10
NOTE	The warning attribute selection must be disabled, otherwise the SCR-application will not print.

# SCU/modality software configuration

## 1. Syngo-based modalities

Application entity Properties	Display	Changes allowed
AE title	DRY7000HR	Yes
Port number	104	No

HC device/ general settings	Display	Changes allowed
Туре	DICOM printer	No
Class (Printer spec file name)	fujidrypix7000HiRes	No
DICOM node	dry7000hr	Yes

Filming properties		Display	Changes allowed
Hold printed film jobs		10	Yes
Min. density		20	Yes
Pixel size [1/1000 mm]		50.0 x 50.0	No
Film sheet formats,	Number of pixels	11" x 14"	
Portrait	[columns x rows]	5075x7043	
		8" x 10"	In "define new"
		3907x4819	Do not modify/add
Film sheet formats,	Number of pixels	11" x 14"	Select only
Landscape	[columns x rows]	7199x4919	Delete only
		8" x 10"	
		4931x3795	
Medium type		Blue film	Yes

Filming properties	Display	Changes allowed
Film destination	Processor	No
Color appearance	Grayscale 12 bit	No
Background	Black	Yes
Transformation	No magnification	No

Do not modify and/or add film sizes.

Do not modify pixel sizes.

Delete film sizes that are not available at the customer site.

#### 2. SCR-based application "not for diagnostic use".

Open Patient Browser, Options, SCR-Service

# Select DICOM, Setup tab card: DICOM Entities Step:

select printer and edit: AET, IP-Adress and Port for new printer.

Example:

scr-System = SCR\_SYNGO

Printer(e.g.) = DRY7000HR

Syngo DICOM port = 5104

SyngoAET = CELSIUS02

#### Select DICOM, Printer tab card: Printer Setup

Step:

define the right printer parameter as below and save it:

DICOM	
Printer (setup of film size 8INx10IN)	Printer (setup of film size 11INx14IN)
Printer name = DRYPIX 7000 8x10	Printer name = DRYPIX 7000 11x14
Dmin = 20	Dmin = 20
Dmax = 350	Dmax = 350
Portrait matrix = 3907x4819	Portrait matrix = 5075x7043
Landscape Matrix =4931x3795	Landscape Matrix =7199x4919
Portrait pixel spacing = 0.5 x 0.5	Portrait pixel spacing = 0.5 x 0.5

DICOM	
Printer (setup of film size 8INx10IN)	Printer (setup of film size 11INx14IN)
Landscape pixel spacing = 0.5 x 0.5	Landscape pixel spacing = 0.5 x 0.5
Graylevel = 16(12)	Graylevel = 16(12)
Medium = BLUE FILM	Medium = BLUE FILM
Medium Size = 8INx10IN	Medium Size = 11INx14IN

The SCR-System AET is by default SCR\_SYNGO. To configure only one AET at the printer site, the syngo AET for print must be also SCR\_SYNGO.

# SCP/hardcopy camera configuration (provided by OEM)

#### Identification

Manufacturer/device type:	DICOM print server (SCP)
Device name:	Drypix 7000
Manufacturer:	FUJI
SW revision:	A04
Physical type:	Ethernet, 10/100 base T/Tx, RJ45
Network protocol:	TCP/IP
DICOM conformance statement:	November 2002, 1st edition.
Image memory:	512 MB RAM (standard)
Hard disk:	20 GB
Number of inputs:	1 network
Number of outputs:	n.a.
Number of operating panels:	1 built-in operating panel

#### **Printer settings**

File name	Content	Remarks
Not available	Protocol:	For client: SCR_SYNGO
	0107H warning	Not Indicated
	0116H warning	Not Indicated

File name	Content	Remarks
	B604H warning	Not Indicated
	N-event report RQ	Disabled
	Use extension format	No
	Change film	272: 0110H[F]
	Use system timeout	Yes
	Presentation LUT	No
	Use max./min. density	Modality
	Magnify:	
	Procedure	A-VR
	Default smoothing type	SHARP
	Adjustment param. SHARP	
	Edge detection	On
	Detection level	600
	Sharpness	130
	Char. mode	White
	Adjustment param. MEDIUM	
	Edge detection	On
	Detection level	600
	Sharpness	80
	Char. mode	White
	Adjustment param. SMOOTH	
	Edge detection	On
	Detection level	800
	Sharpness	30
	Char. mode	White
	LUT:	
	Procedure	SAR
	Default LUT	1
	Adjustment parameters	
	LUT	
	r table number	39

File name	Content	Remarks
	Max. density	360
	Min. density	17
	Number of tuning points	2
	Tuning point 1	Density 120/shift +3
	Tuning point 2	Density 240/shift +1
	Tuning point 3	
	Tuning point 4	
	Tuning point 5	
	Dmax 3.6	Standard
	Output format:	
	Border density	300
	Polarity [pos./neg.]	Normal [pos.]
	Trim density	0
	Trim	Off
	Margin between images	20
	Image layout	Concentration
	Film size	10INX14IN
	Film orientation	Portrait
	Mirror	Off

The warning attribute selection must be disabled, otherwise the SCR-application will not print.

#### **Error/warning messages**

No errors or warnings have been tested.

# Image quality and optical density

No specific parameter available.

Real size scaling

N/A

# Fuji FM DPL/FN-PS551

## **General information**

#### **Block diagram**

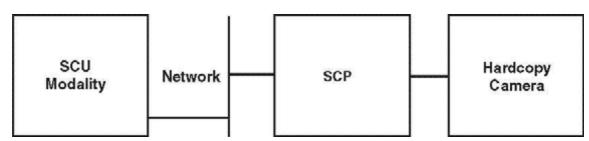


Fig. 5:

#### Available film sizes

Appli	cation	Status	Film type	Medium type
4.411 - 4.711	Portrait	No <sup>1</sup>	No <sup>1</sup>	No <sup>1</sup>
14" x 17"	Landscape	No <sup>1</sup>	No <sup>1</sup>	No <sup>1</sup>
14" x 14"	Portrait	N/A	N/A	N/A
14 X 14	Landscape	N/A	N/A	N/A
11" x 14"	Portrait	Yes	DI-AL	Blue-based
	Landscape	Yes	DI-AL	Blue-based
8" x 10"	Portrait	Yes	DI-AL	Blue-based
	Landscape	Yes	DI-AL	Blue-based
Oth	ners	N/A	N/A	N/A

<sup>1.</sup> Film size is available but not released

#### Restrictions

NOTE	For HCC-independent restrictions, see (Errors and warning messages / p. 5).
NOTE	Only EN55011 and FCC, Class A(Hospital use).
NOTE	Additional labeling and trim have to be switched off.

NOTE	Only one camera connection to FN-PS551 was used for the qualification.
NOTE	Maximum number of associations supported: 6
NOTE	In a multi-modality environment, one additional hardware channel (also a second print server PS551) must be installed for mammography modalities on the printer side.
NOTE	Known effect of FN-PS551: The warning attribute selection must be disabled, otherwise the SCR application will not print.
NOTE	Printer is responding max. density 3.0 instead of requested 3.5.  The films will be printed with a density of 3.5
NOTE	The warning attribute selection must be disabled, otherwise the SCR application will not print.

# SCU/modality software configuration

## 1. Syngo-based modalities

Application entity Properties	Display	Changes allowed
AE title	FMDPLHR	Yes
Port number	104	No

HC device/ general settings	Display	Changes allowed
Туре	DICOM printer	No
Class (Printer spec file name)	fujifmdpHiRes	No
DICOM node	FMDPLhr	Yes

Filming properties		Display	Changes allowed
Hold printed film jobs		10	Yes
Min. density		20	Yes
Pixel size [1/1000 mm]		50 x 50	No
Film sheet formats,	Number of pixels	11" x 14"	
Portrait	[columns x rows]	5000x7000	
		8" x 10"	In "define new"
		3904x4819	Do not modify/add
Film sheet formats,	Number of pixels	11" x 14"	Select only
Landscape	[columns x rows]	7120x4880	Delete only
		8" x 10"	
		4928x3795	
Medium type		Blue film	Yes
Film destination		Processor	No
Color appearance		Grayscale 12 bit	No
Background		Black	Yes
Transformation		No magnification	No

Do not modify and/or add film sizes.

Do not modify pixel sizes.

Delete film sizes that are not available at the customer site.

#### 2. SCR-based application "not for diagnostic use".

Open Patient Browser, Options, SCR-Service

Select DICOM, Setup tab card: DICOM Entities		
Step:		
select printer and edit: AET, IP-Adress and Port for new printer.		
Example:		
scr-System = SCR_SYNGO		
Printer(e.g.) = FMDPLHR		
Syngo DICOM port = 5104		
SyngoAET = CELSIUS02		

#### Select DICOM, Printer tab card: Printer Setup

Step:

define the right printer parameter as below and save it:

DICOM		
Printer (setup of film size 8INx10IN)	Printer (setup of film size 11INx14IN)	
Printer name = FMDPL-PS551 8x10	Printer name = FMDPL-PS551 11x14	
Dmin = 20	Dmin = 20	
Dmax = 350	Dmax = 350	
Portrait matrix = 3904x4819	Portrait matrix = 5000x7000	
Landscape Matrix =4928x3795	Landscape Matrix =7120x4880	
Portrait pixel spacing = 0.5 x 0.5	Portrait pixel spacing = 0.5 x 0.5	
Landscape pixel spacing = 0.5 x 0.5	Landscape pixel spacing = 0.5 x 0.5	
Graylevel = 16(12)	Graylevel = 16(12)	
Medium = BLUE FILM	Medium = BLUE FILM	
Medium Size = 8INx10IN	Medium Size = 11INx14IN	

NOTE

The SCR-System AET is by default SCR\_SYNGO. To configure only one AET at the printer site, the syngo AET for print must be also SCR\_SYNGO.

# SCP/hardcopy camera configuration (provided by OEM)

#### Identification

Device type:	DICOM print server/printer	
Device name:	FN-PS551	
Manufacturer:	FUJI Photo Film	
SW revision:	A 06	
Physical interface:	Ethernet 10/100 base T/TX, RJ45	
Network protocol:	TCP/IP	
DICOM conformance statement:	DCS FM-DPL / May 2001, 4th edition	
Image memory:	6 GB (256 MB main memory)	

Hard disk:	6.4 GB
Number of inputs:	1 Network, RJ45
Number of outputs:	1
Number of operating panels:	1 keyboard

Device type:	DICOM camera
Device name:	FM - DPL
Manufacturer:	FUJI Photo Film
SW revision:	W01-02
Physical interface:	None
Network protocol:	None
DICOM conformance statement:	None
Image memory:	48 MB RAM
Hard disk:	None
Number of inputs:	3 Inputs
Number of outputs:	n.a.
Number of operating panels:	1 built-in keypad

# **Printer settings**

Film size:	26X36
Image type:	Enable fine scan
Gradation type:	Select: 3.6

File name	Content	Remarks
None	FUJI service utility setting	Provided by FUJI
	Function	Properties
	Protocols: DICOM	Network port no. = 104
		Data transfer timeout = 600 sec.
		Print server application entity = one to each printer
		Data receive if the printer is offline = enable
	Printer: FMDPL	Properties

File name Content		Remarks
None	FUJI service utility setting	Provided by FUJI
	Name:	AE title of DICOM = FMDPL
		Fine printing = FMDPLHR
	Interface:	Interface = E-i/f
		Pixel clock = 1.0 μsec/pixel
		Version = type 1
		Film size = 14 x 17
		Film medium = blue
	Model:	Model = FN-PS551
		Manufacturer = FUJI PHOTO FILM CO, LTD
	Clients: DICOM:	Properties
	Name:	Host name = CELSIUS02
		IP address = (from system administrator)
	Protocol:	Protocol = DICOM
		Application entity title = SCR_SYNGO
		Attribute list error (0107H warning) = <b>Not</b> indicated
		Attribute value out of range (0116H warning) = <b>Not indicated</b>
		Image size larger than image box (B604H warning) = <b>Not indicated</b>
		N-event report RQ = disabled
		Use presentation LUT = No
		Data transfer timeout = enabled
		Use extension format = No
	Magnify:	Procedure = A-VR
		Smoothing type = SHARP
		Adj. parameter = SHARP
		Edge detection = OFF
		Detection level = 600
		Sharpness = 130

File name	Content	Remarks
None	FUJI service utility setting	Provided by FUJI
		Character color = White
	LUT:	Procedure = SAR
		Default LUT = 1 (linear)
		Adj. parameter LUT = 1
		r table no. = 39
		Max. density = 300
		Min. density = 20
		Number of tuning points = 2
		Tuning point 1, density = 75, shift = 2, contrast = 100
		Tuning point 2, density = 275, shift = -5, contrast = 100
	Printer:	Fixed, FMDPL
	Output format 1:	Border density = 300
		Polarity = normal (pos.)
		Trim density = 300
		Trim = off
		Trim width = 1 pixel
		Number of copies = 1
		Film size = 14x17
		Medium type = blue
		Film orientation = portrait
		Mirror = OFF (normal)
		Overlay threshold density = 120
	Output format 2:	Margin between images = 20 pixel
		Image layout = concentration

File name	Content	Remarks
None	FUJI service utility setting	Provided by FUJI
	Annotation: Print server	Upper left = (nothing selected)
		Upper center = (nothing selected)
		Upper right = (nothing selected)
		Lower left = (nothing selected)
		Lower center = (nothing selected)
		Lower right = (nothing selected)
	Logging:	Network = (No)
		Printer = (No)
		DICOM = normal
		Output image to file = off
		Precedence = Input
	Sorting:	Sorting conditions = (nothing selected)

The warning attribute selection must be disabled, otherwise the SCR application will not print.

# **Error/warning messages**

No errors or warnings have been tested.

# Image quality and optical density

No specific parameter available.

Real size scaling

N/A

# Kodak DryView 8900

# **General information**

# **Block diagram**

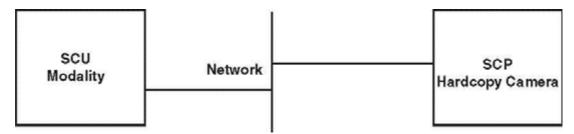


Fig. 6:

#### Available film sizes

Appli	cation	Status	Film type	Medium type
14" x 17"	Portrait	No <sup>1</sup>	No <sup>1</sup>	No <sup>1</sup>
14 X 17	Landscape	No <sup>1</sup>	No <sup>1</sup>	No <sup>1</sup>
14" x 14"	Portrait	No <sup>1</sup>	No <sup>1</sup>	No <sup>1</sup>
14 X 14	Landscape	No <sup>1</sup>	No <sup>1</sup>	No <sup>1</sup>
11" x 14"	Portrait	No <sup>1</sup>	No <sup>1</sup>	No <sup>1</sup>
11 X 14	Landscape	No <sup>1</sup>	No <sup>1</sup>	No <sup>1</sup>
10" x 12"	Portrait	Yes	DVM	Blue-based
10 X 12	Landscape	Yes	DVM	Blue-based
8" x 10"	Portrait	Yes	DVM	Blue-based
O X IU	Landscape	Yes	DVM	Blue-based
Oth	ners	N/A	N/A	N/A

<sup>1.</sup> Film size is available but not released

## Restrictions

NOTE For HCC-independent restrictions,see (Restrictions and known effects / p. 5).

NOTE Standard EN55011 is supported only as a class A (hospital use) device.

Minimum density command is not supported. The value of the minimum density is the value of the fog on the film.

NOTE

Maximum number of associations supported: 12

NOTE

For mammography use:

Only film sizes 8" x 10" and 10" x 12" with DVM film type is released.

NOTE

The linear LUT for film size 8"x10" and 10"x12" is out of tolerance for a max. density of 3.5.

The linear LUT for film size 10"x12" is out of tolerance for a max. density of 3.0.

NOTE

This setting is different from Kodak default setting. The first time a new modality send a print job to DryView 8900, it will asign automaticly the wrong Kodak setting, therefore the Kodak Technician has to install the right setting.

NOTE

For all film sizes, portrait and landscape orientation, an "identification" text sentence is visible (at one border site) in diagnostic area. Also the diagnostic area is not complete visible within same edges, because they are rounded.

# SCU/modality software configuration

## 1. Syngo-based modalities

Application entity Properties	Display	Changes allowed
AE title	DV8900 <sup>1</sup>	Yes
Port number	5040	No

<sup>1.</sup> Do not use an AE title such as "NER\_..."

HC device/ general settings	Display	Changes allowed
Туре	DICOM printer	No
Class (Printer spec file name)	kodak8900HiRes_sm allB	No
DICOM node	DV8900	Yes

Filming properties		Display	Changes allowed
Hold printed film jobs		10	Yes
Min. density		20	Yes
Pixel size [1/1000 mm]		39.08 x 39.08	No
Film sheet formats,	Number of pixels	10" x 12 "	
Portrait	[columns x rows]	6368x7656	
		8" x 10"	In "define new"
		5056x6368	Do not modify/add
Film sheet formats,	Number of pixels	10" x 12"	Select only
Landscape	[columns x rows]	7656x6368	Delete only
		8" x 10"	
		6368x5056	
Medium type		Blue film	Yes
Film destination		Processor	No
Color appearance		Grayscale 12 bit	No
Background		Black	Yes
Transformation		No magnification	No

Do not modify and/or add film sizes.

Do not modify pixel sizes.

Delete film sizes that are not available at the customer site.

# 2. SCR-based application "not for diagnostic use".

Open Patient Browser, Options, SCR-Service

Select DICOM, Setup tab card: DICOM Entities

Step:

select printer and edit: AET, IP-Adress and Port for new printer.

Example:

scr-System = SCR\_SYNGO

Printer(e.g.) = DV8900

Syngo DICOM port = 5104

SyngoAET = CELSIUS02

### Select DICOM, Printer tab card: Printer Setup

Step:

define the right printer parameter as below and save it:

DICOM	
Printer (setup of film size 8INx10IN)	Printer (setup of film size 11INx12IN)
Printer name = DRYVIEW8900 8x10	Printer name = DRYVIEW8900 10x12
Dmin = 20	Dmin = 20
Dmax = 350	Dmax = 350
Portrait matrix = 5056x6368	Portrait matrix = 6368x7656
Landscape Matrix =6368x5056	Landscape Matrix =7656x6368
Portrait pixel spacing = 0.5 x 0.5	Portrait pixel spacing = 0.5 x 0.5
Landscape pixel spacing = 0.5 x 0.5	Landscape pixel spacing = 0.5 x 0.5
Graylevel = 16(12)	Graylevel = 16(12)
Medium = BLUE FILM	Medium = BLUE FILM
Medium Size = 8INx10IN	Medium Size = 11INx14IN

**NOTE** 

The SCR-System AET is by default SCR\_SYNGO. To configure only one AET at the printer site, the syngo AET for print must be also SCR\_SYNGO.

# SCP/hardcopy camera configuration (provided by OEM)

# Identification

Manufacturer/device type:	DICOM print server (SCP)	
Device type:	Dry imager	
Manufacturer/device name:	Kodak/DryView 8900	
SW revision:	DV8900_2.11	
	MIM_5.6.b5	
Image memory:	786 MB RAM	
Hard disk:	40 GB	
Number of operating panels:	1 internal keypad	
Number of inputs:	1	
Number of outputs:	N/A	
Physical network interface:	Ethernet, RJ45	
Network protocol:	TCP/IP	
Manufacturer's specifications:	Kodak document#1F0730 revision C January 28, 2004 release 2.0	

#### Printer settings

#### Content

#### 8900 setup: (Provided by Kodak)

#### □ On configuration, system, network:

Host Name=DV8900, IPAddr=accordingly

Subnet Mask=accordingly, Gateway Addr=accordingly

#### On Configuration, DICOM SCP, Communications:

Port=5040, Association Limit=12, Source Name=DICOM

### On configuration, destination:

General remarks: Log.Name=8900

Media types: Media=35x43cm, 9100x11037, 10781, Any Media types: Media=35x35 cm, 9100x9087, 8831, Any Media types: Media=11"x14", 7137x9100, 8844, Any Media types: Media=10"x12", 6490x7767, 7511, Any Media types: Media=8"x10", 5167x6490, 6234, Any

Formatting: Aspect Ratio Mix Page=On, Aspect Ratio Mix Row=On Formatting: Image Size Mix in Std Fmt=On, Image Size Mix Row=On

Formatting: DICOM Annotation Box=On, Req.Image Size=On

Formatting: Req.Size Scale=On, Req.Size Mix Page=On

Formatting: Req.Size Mix Row=On, Trim=On, Formatting: True Landscape=On, Rotation=On

Formatting: Minify/Crop=On, Tone Scaling on Image Basis=On Formatting: Max Img Band=7, Max Band Page=7, Max Img Cols=0 Formatting: Max Img Rows=0, Pixel Pitch=25.5910, Min Horiz Sep=4

Formatting: Min Vert Sep=4, Trim Width Enabled=4

Formatting: Trim Width Disabled=0, Maximum DMAX=3.30

#### On configuration, DICOM SCP, SCP services:

Select specific modality, modify:

Negotiate Presentation LUT=No, Negotiate Color Print=No

TFT/ULUT= Wrkstn2a.w87 (Always=Y)

Contrast=1(Always=N),

**Smoothing type=5** (Always=Y),

Image Dmin=0.00 (Always=N),

Image Dmax=3.00 (Always=N)

Polarity= Normal, (Always=N)

NeventReports=No (Always=Y), Warnings=Yes

Print Priority=Normal (Always=N),

Border=3.99 (Always=N)

#### 2mm Border=Yes, Film Base=Mammo Blue Film (Always=Y)

Film Size=14INx17IN (Always=N)

Sorter Bin=Bin1 (Always=N),

Print Date=No, Print Time=No,

Page Nbr=No, Hosp.Name=No,

Modality ID=No

Annotation Override=No, Density Patch=No

Image Resizing=Minify/Scale (Always=N),

Text Box Location=None, Source ID=syngo

This setting is different from Kodak default setting. The first time a new modality send a print job to DryView 8900, it will asign automaticly the wrong Kodak setting, therefore the Kodak Technician has to install the right setting.

# **Error/warning messages**

No errors or warnings have been tested.

# Image quality and optical density

No specific parameter available.

Real size scaling

N/A

# Changes to previous version

Chapter	Section	Action